

HORIZONS

AUGUST 1969 / PAN AMERICAN PETROLEUM CORPORATION

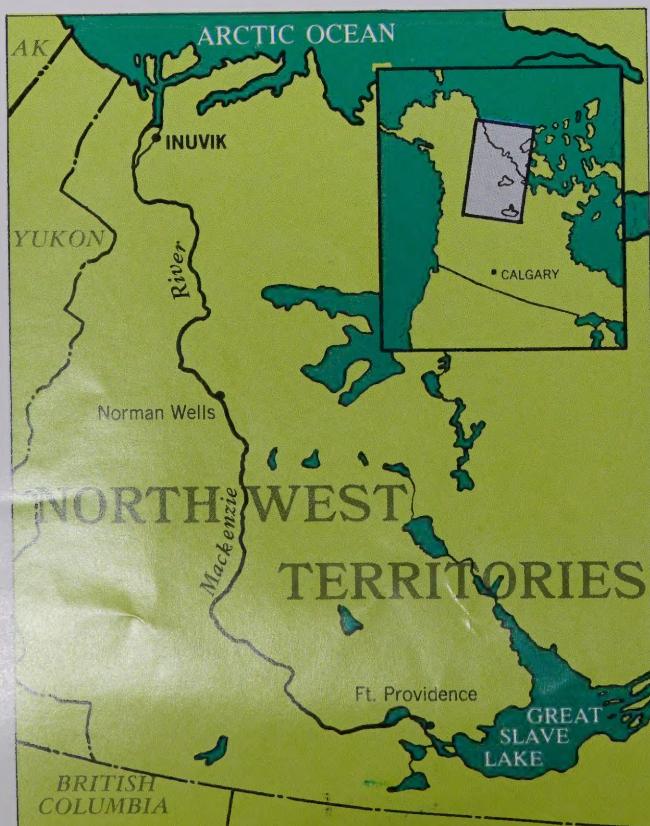
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Mackenzie River operation page 1



Barging of six million pounds of equipment and supplies down the Mackenzie River preceded the drilling now underway of one of Canada's northernmost wells. The 1,000-mile river juncture to Inuvik began here at Fort Providence. The town itself is located on the right bank near the center of the photo.

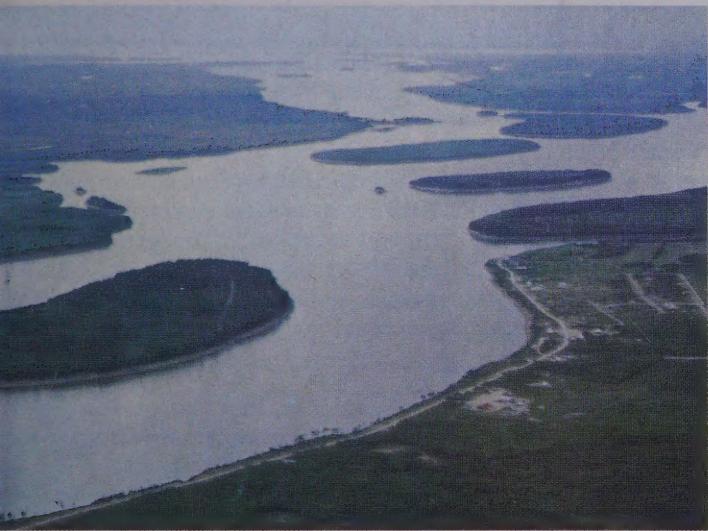
The movement, planned months in advance, took place in late June when the river was sufficiently thawed. Equipment had first been moved to Fort Providence from Edmonton by rail and truck. **RIGHT:** Propelled by a powerful tug, a barge moves down the Mackenzie. The final destination, the wellsite and Inuvik, is about 50 miles south of the Arctic Ocean.

COVER: Sunset at Fort Providence (at 10:30 p.m.) casts a brilliant hue over Amoco Canada's dock loading facility on the Mackenzie River.

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MACKENZIE RIVER OPERATION—Barging of drilling rig, equipment and supplies 1,000 miles down river is Amoco Canada's initial step into the remote Western Arctic region.

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AMOCO CANADA—Our new affiliate comes into being as one of Canada's select "top 10" producers of crude oil and natural gas liquids.

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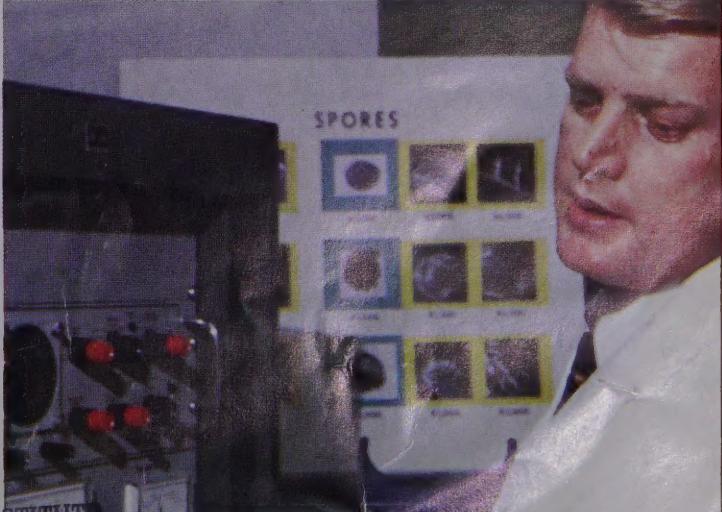
EQUAL EMPLOYMENT—Pan Am is taking an active role in bringing citizens from racial minorities into the mainstream of its business operations.

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OUR PURCHASING DEPARTMENT—Pan Am's "shoppers" provide the key link between the company's needs and the nation's vast industrial complex.

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HOUSTON HONORS LONG-SERVICE EMPLOYEES

Employees of the Houston division who completed 40, 30 and 25 years of company service were honored recently in Houston. Attending the ceremonies were, back row, left to right: E. W. Korff, Corpus Christi area, 25 years; F. B. Evans, Old Ocean, 25; L. H. Roberts, Corpus Christi, 25; C. L. Ford, Corpus Christi, 25; J. K. Hardey, Pan American Gas Company, 30; J. L. Tinnin, Tyler, 25; J. H. Alexander, Tyler, 40; and J. R. Foster, Houston, 30. In the front row, from left: J. C. Johnston, vice president and division manager, Houston; Stanley Moore, Houston, 40; D. R. Blocker, Hastings, 30; Randolph Yost, Pan American president, special guest; E. O. Eakens, Beaumont, 25; J. B. Clements, Hastings, 40; S. M. Hammock, Tyler, 40; and W. E. Clements, Tyler, 25. Not present for the picture were A. E. Sears, Old Ocean, 30; Gladys Jacobs, Houston, 30; and G. C. Honeycutt, Tyler, 25.

Representatives of Pan American Petroleum Foundation, J. F. Campbell, left, and Jack McWilliams, right, recently presented a grant of \$1,000 to Prairie View A&M College's development fund. Accepting the grant is Dr. Alvin I. Thomas, president of the college located at Prairie View, Texas, northwest of Houston. The grant is in recognition of Prairie View's outstanding contribution to the development and education of its students. Pan American Petroleum Foundation, which is supported



by our company, also sponsors 65 undergraduate scholarships and 14 graduate fellowships at other leading universities across the country.

STANDARD STOCK averaged \$67.3136 per share for the month of May and \$65.7103 for the month of June. These

prices were the basis for stock purchases for employees who participate in our company's savings plan.

international fleet. The vessels "Amoco Cremona" and "Amoco Brisbane" were placed in service last year. A fourth vessel, the "Amoco Baltimore," was christened and launched in January and will be put into service later this year. The "Amoco Yorktown" is 789 feet long, 118 feet wide and has a cargo-carrying capacity of about 608,000 barrels.

Meanwhile a wildcat well, recently drilled 25 miles off the eastern coast of Trinidad by a subsidiary of **AIOC**, flowed oil at rates of 1,100 to 1,440 barrels per day during three drillstem tests. Further drilling and testing will be undertaken to evaluate the significance of this, the ninth in a series of offshore tests drilled by the AIOC subsidiary.

Another **AIOC** subsidiary has signed an agreement with the government of Pakistan for petroleum exploration and production rights covering 20,000 square miles in the Indus Valley of West Pakistan. Exploratory work is expected to begin by the end of the year. The agreement is for eight years and can be extended if a commercial discovery has been made within that time.

interest in the discovery. It flowed at the rate of 557 barrels of oil and 11 barrels of water per day from a 250-foot, highly fractured zone in the basal Smackover. Prior attempts in Mississippi to complete in fractured Smackover zones have generally been unsuccessful.

In the southeastern corner of New Mexico, a full-interest discovery flowed 218 barrels of oil and 189 barrels of load water per day from Permian Blinebry perforations above 6,000 feet. The Pan Am No. 3 State C Tract 11 encountered

64 feet of net pay 100 feet high to the nearest Blinebry producer in Oil Center field one mile west.

The second Pan Am-Davis Muddy Sand discovery in the Kluver area of northeast Wyoming's Powder River Basin has been completed for an initial pumping potential of 147 barrels of oil daily. An earlier discovery, located three miles northeast, is currently flow testing the Muddy Sand. We hold 50 percent working interest in both wells. The Kluver area is 35 miles southeast of the Recluse field and 30 miles

southeast of the new Collums field, where we made a significant Muddy discovery earlier in the year.

Our full-interest No. 2 Blackshear, located about 95 miles southeast of Lubbock, Texas, has been completed flowing 116 barrels per day above 5,000 feet in the Pennsylvanian Canyon Reef. Pan Am owns about 40 net acres surrounding the discovery. The 63 feet of net pay logged in the well is comparable to the pay in Aspermont Lake field, located one-half mile north.

Bernard A. Curvin, sr. geologist.....Ft. Worth
Kathryn Dietrich, secretary.....New Orleans
Isaac Duhon, roustabout.....Lafayette
Lawrence A. Freyau,
staff asst. (sg).....Lake Charles
Frank J. Griffin, pumper.....Monahans
Francis Lee Hampton,
fac. plant opr.-pumper rsbt.....Tyler
Robert R. Harbison, sr. geologist.....Ft. Worth
Clarence R. Hardy, pumper.....Lafayette
George W. Haynes, staff geologist.....Ft. Worth
Jemmy E. Hebert, roustabout.....Lafayette
Frank Henn,
field materials svpr.....La. Offshore
George C. Honeycutt,
pumper-fac. plant oper.....Tyler
Christopher C. Johnson
staff asst. (sg).....Lake Charles

Wayne P. Jones,
gas measurement anal.....Denver
Ray M. Krier, sr. research asst.....Tulsa
Harold E. McClure,
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Lyman C. Michael, gang foreman.....Ulysses
Virgil D. Morris, field foreman.....Andrews
Samuel M. Slonaker, staff asst. (sg)....Ft. Worth
Philip F. Wight, admin. asst.....Ft. Worth
James F. Wilkins, pumper.....Andrews

10 YEARS AND OVER
Fletcher B. Young, repairman.....Slaughter

HORIZONS

Vol. XIX, No. 4, Published and Copyrighted by Pan American Petroleum Corporation, Tulsa, Oklahoma. Editor: R. N. Murphy. Staff Photographer: B. G. Houston. Pan American is a wholly owned subsidiary of Standard Oil Company (Indiana). It conducts operations involved in finding and producing crude oil, natural gas liquids and sulfur, and purchase and sale of natural gas and crude oil.

Destination: 1,000 river miles north

Our new affiliate, Amoco Canada, completes unique river-barging operation to evaluate prospects north of the Arctic Circle

THE NORTHERNMOST WELL ever drilled in Canada by either our affiliate Amoco Canada or its predecessor, Pan American, is currently drilling in the far reaches of the Northwest Territories, 125 miles north of the Arctic Circle. A rank wildcat, it is situated near the village of Inuvik (pronounced in-NU-vik) a scant 50 miles south of the Arctic Ocean.

Because of the vast distances involved, the drilling operation is the result of months of logistical planning. Weeks before drilling began, more than six million pounds of equipment and supplies were moved by truck and rail from Edmonton to Fort Providence. At this point, equipment was barged some 1,000 winding miles down the Mackenzie River ("down" is north in this part of Canada) to the final destination on the southerly part of the Mackenzie River Delta.

Barges leaving Fort Providence were powered by tugboats on their week-long voyage down river through endless stretches of roadless wilderness. Interestingly, the river journey paralleled that taken 180 years earlier

by the famous explorer, Sir Alexander MacKenzie, for whom the river is named.

Total cost of the Inuvik well, including drilling, completion and river transportation, is expected to run about \$1 million. Fully 25 percent of this amount is in transportation alone — the loading, unloading and barging of the rig itself, the camp, auxiliary equipment, fuel, cement, storage tanks, pilings, vehicles and miscellaneous equipment.

The Inuvik operation is full of uncertainties. The surrounding country is virtually unknown geologically. No more than a dozen wells have ever been drilled beyond 65 degrees north latitude in the Canadian Arctic. The Inuvik well is north of the 68th parallel.

Northernmost oil production throughout the entire North American continent, outside of newly found Prudhoe Bay on the North Slope of Alaska, is around Norman Wells, 325 miles southeast of Inuvik. Amoco Canada's northernmost production is 640 miles southeast of Inuvik in the Pointed Mountain and Beaver River gas fields.

Throughout the Inuvik area, the soils are
continued on next page

At Grande Prairie, Alberta, Fred Holan, Amoco Canada area foreman, and Al Scharff, standing, drilling foreman, discuss logistics of equipment and supplies for the Inuvik well.



frozen or nearly frozen year round—starting at about a foot below the surface and extending downward to probably 1,000 feet. This permafrost makes it necessary to set the substructure of a drilling rig on wood pilings and a thick pad of gravel. This keeps the rig from sinking down since the operation of the rig generates a large amount of heat.

Year-around temperatures can vary more than 150 degrees. Summers may see a sun-burning 80 degrees. During winter, the mercury has been known to dip to -70 degrees, with "chill" temperatures going below -110 degrees. Winter snowfall averages 68 inches. Needless to say, at this extreme latitude, total darkness prevails for a good portion of the winter, as does total light in the summer.

Besides permafrost and temperatures, distance, too, is a major problem. From the Inuvik well, it is approximately the same distance to the North Pole—some 1,500 miles—as it is to Amoco Canada's General Office in Calgary. Westward, the drillsite is about 70 miles from the northern Yukon Territory and 200 miles from the border of Alaska.

With the reportedly huge discoveries at Alaska's Prudhoe Bay only 400 miles northwest, Amoco Canada is evaluating several other prospects in the area by means of geophysical surveys. Future plans call for additional drilling and more surveying.

Because of recent successes on the North Slope, the possibility looms that the entire northern sedimentary area of North America could prove to be a major source of petroleum. Our affiliate therefore plans to push even farther to the north—to Arctic islands including offshore.

Amoco Canada holds under lease more than six million net acres in the Arctic region. By drilling the Inuvik well, the company will earn a 40 percent interest in a 141,000-acre block. It will also have the option to drill two additional wells on adjoining acreage, thereby earning an additional 76,000 net acres.

Too, Amoco Canada will earn nearly 66,000 acres of offshore permits in the Beaufort Sea off the coast of the Yukon and Northwest Territories about 125 miles from the Inuvik test. This acreage is in water depths ranging from 60 to 150 feet.

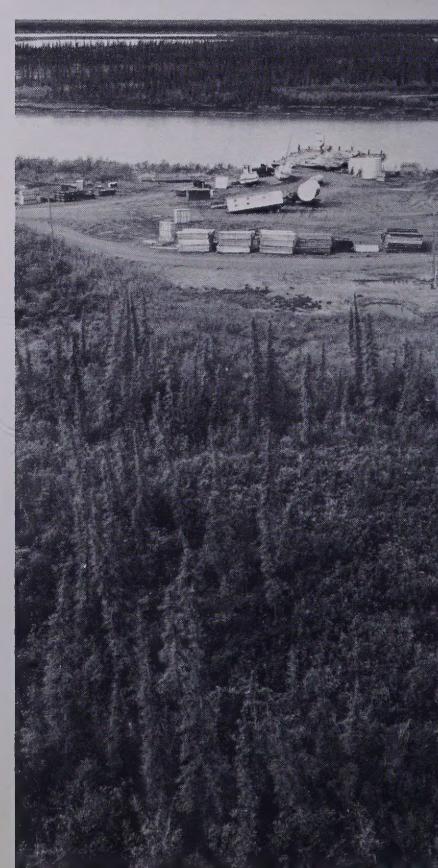
Much of this land, both below and above the Arctic Circle, was at one time "MacKenzie country," at least so say historians, since he was the first white man to venture into this part of the unknown world. His voyage was the first exploration carried out in the region.

It was the late spring of 1789 that MacKenzie, the Scottish-born fur trapper, set out to follow the "great river of the Athabasca

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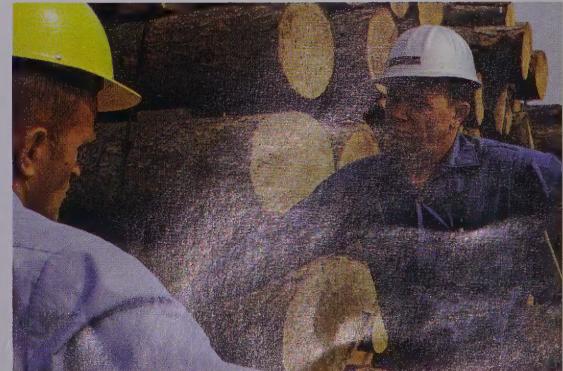
Loaders at Fort Providence discuss inventory of equipment aboard the barge. Note the piece of disassembled drilling rig in the foreground.



End of the line is this unloading dock facility near Inuvik, just east of the river and surrounded by spruce.



Permafrost, a frozen soil, abounds over a wide region. When subjected to summer heat, "mud heaves" form at the surface. The road leading to the wellsite is elevated by more than three feet in order to sustain heavy vehicle traffic. Road fill comes from gravel taken from local beds.



LEFT: On the banks of the Mackenzie at Fort Providence, contract loaders arrange equipment aboard a barge prior to departure for Inuvik. ABOVE: Darcey Nagel, right, Amoco Canada field foreman in Inuvik, and Lou Abel, contract tool pusher, discuss positioning of pilings which will support the drilling platform.



Wilderness area of permafrost and stunted spruce envelop Amoco's Inuvik camp (foreground) and elevated road leading to drill site.

1,000 river miles north

continued

district," as it was then called, to test his theory that the river ultimately drained into the Pacific Ocean. This incredible undertaking which started from Fort Chipewyan in northeastern Alberta preceded the Lewis and Clark expedition in the United States by 15 years.

From time to time throughout his 39-day journey in a birch bark canoe, he experienced heavy winds, rough rapids, ice floes, biting cold and clouds of mosquitoes. Mackenzie struggled against both starvation and the natural elements. Along the way, he disregarded tales by Indians that ahead lay impassable rapids, ogres and other monsters. The persistent Mackenzie was never hesitant to push onward.

Finally on July 12, the explorer found himself on the ice-bound coast of the Arctic Ocean. Though disappointed because he failed in his objective of finding a northwest

passage to the Pacific, to him goes the honor of discovering the river which today bears his name—the longest river in North America with the exception of the Mississippi.

Some 165 years after Mackenzie sailed by its banks, the village of Inuvik came into being. Today it is a modern Arctic town, a bright oasis in the wilderness, the only such town in an area covering thousands of square miles. In the mid-1950s, Inuvik was designated as an Arctic base for development by the Canadian government as well as a center to bring education, medical care and new opportunity to the people of the Western Canadian Arctic.

An Eskimo word meaning "the place of man," Inuvik is a focal point for people of the far northwest. Nearly half of the village's 3,000 inhabitants are Eskimo or Indian.

Lying within the northernmost reaches of the tree line, Inuvik has a combined Arctic and sub-Arctic environment. Because of the permafrost, houses and buildings are constructed atop wood pilings—often referred to as "stilts."

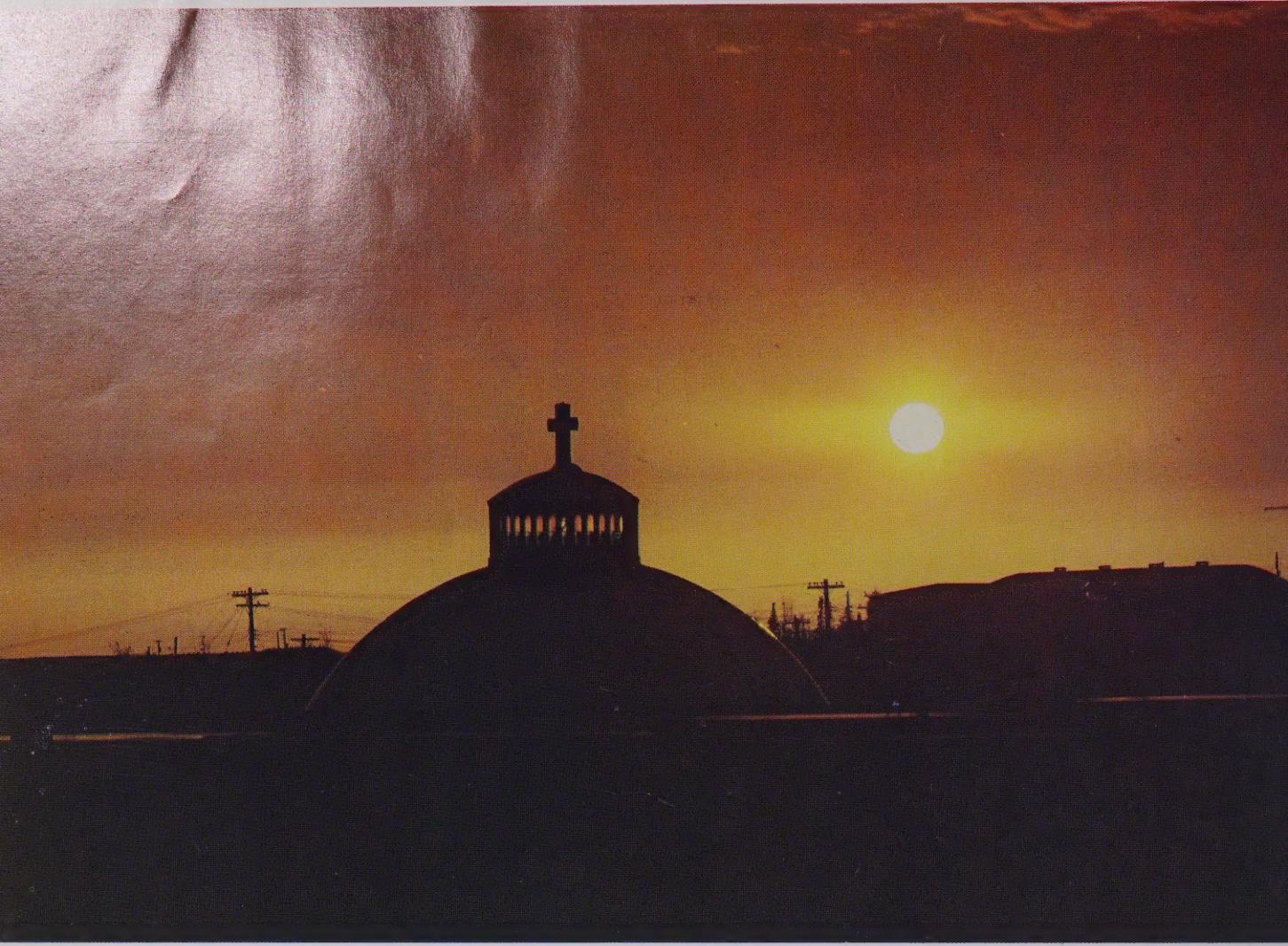
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Because of recent successes on the North Slope of Alaska, 400 miles northwest of Inuvik, our affiliate is evaluating prospects over a wide region of the Arctic North country. At Taylor Lake, 150 miles southeast of Inuvik, a surface geology party is at work. From left: Geologists Garry W. Ferguson, G. K. Williams (party chief), Terry McCoy, Jim Look and Doug MacFarlane.



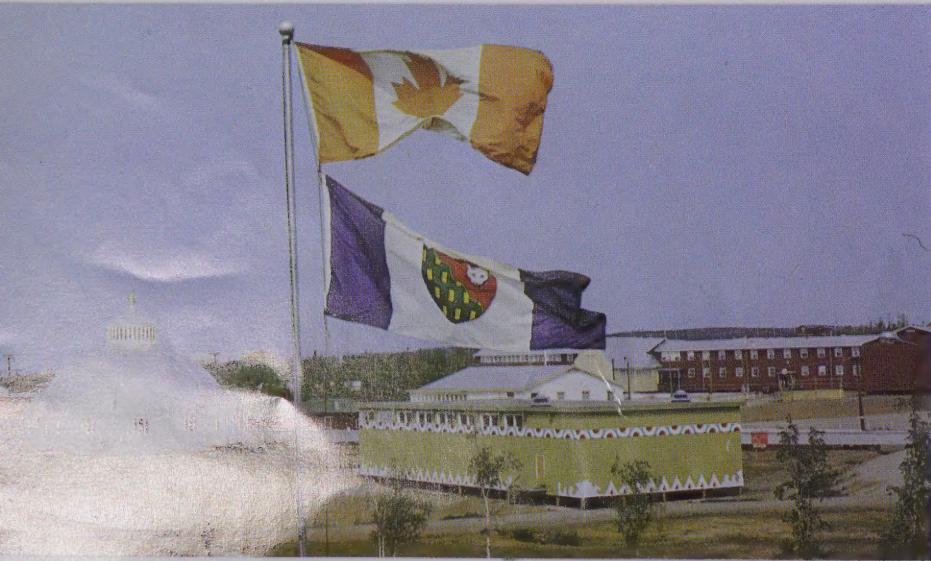
To preserve frozen condition of permafrost and maintain stability at the surface of the A-1 well, these two pieces of refrigerating conductor pipe were inserted into the top 60 feet of the hole.



The midnight sun is still high on the horizon in this photograph taken at Inuvik early last month. The village is north of the Arctic Circle and beyond 68 degrees north latitude.

Heat and water are transported to residents through this insulated metal-clad "utilidor" system built several feet above the ground.

Flags of Canada and the Northwest Territories fly over Inuvik, a town of contrasts ranging from dome-shaped architecture of Roman Catholic church, left of photo, to Indian decorations on the building at right.



000 river miles north

continued

Utilities are provided by a metal-clad, insulated system called a "utilidor." Located several feet above ground and winding throughout a large area, the system carries water and heat to residents through separate conduits and also serves to transport sewage.

The main street in Inuvik, which starts at the airport on one side of town and terminates at a dead-end on the opposite side, is seven miles long. Even including unpaved dirt roads in residential areas, the total network of roads is only 25 miles. Still, a dozen taxicabs are kept relatively busy.

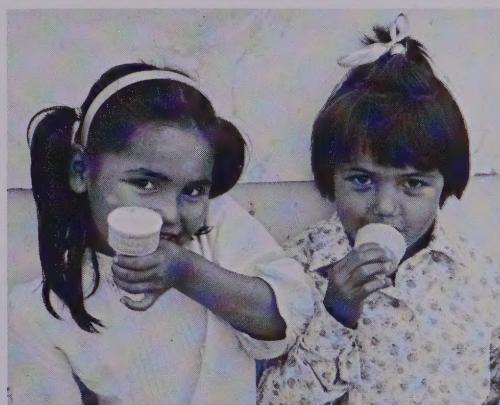
So remote is the village that there are only three ways to get in or out: air, river or on foot—although the latter is seldom recommended. The last through road is nearly 6,000 miles to the south. Local trappers, however, often venture out several hundred miles on foot—camping along the way.

From Amoco Canada's General Office in Calgary, 1,500 miles southeast, the Inuvik wildcat is indeed the "great leap outward." While no one can foretell what this venture will bring, this far-distant exploratory well is only the beginning of larger-scale activity in regions even more remote in the Far North Country.

END



Sir Alexander Mackenzie sailed by the present site of Inuvik 180 years ago in hopes that the river would empty into the Pacific Ocean. Instead, 50 miles farther north, he encountered the Arctic Ocean.



Kids are kids, and they all love ice cream—whether here in Inuvik or 1,500 miles southeast in Calgary.



Nearly half of the village's 3,000 inhabitants are Eskimo or Indian. Local citizenry flock into two of the town's retail stores, Hudson's Bay Company, above left, and a local raw fur dealer.

WHAT ARE WE DOING ABOUT

EQUAL OPPORTUNITY?

If society is in trouble, business is in trouble, too. Hiring and promoting people without regard to race and giving every citizen the opportunity to become a productive contributor to our economic system are two basic things that business is doing to help solve these social problems.



Pan American employees are a diversified group in terms of skills, background and outside interests. They are also diversified in racial characteristics. Nick Torres, left, a professional assistant in Fort Worth's exploration department, is of Mexican extraction.

Date Due

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Mackenzie River operation : destination : 1,000 river miles north : our new affiliate, Amoco Canada, completes unique ri		
DATE LOANED	BORROWER'S NAME	DATE DUE

DATE LOANED	BORROWER'S NAME	DATE DUE

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